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CONCENTRATION OF TITANIUM DIOXIDE (TIO2) FROM IRAQI SANDS OF AL-AMAJ REGION

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TiO2 is one of very important oxides in ceramic industries, glass and glassed ceramic for its chemical, optical, thermal, electrical properties which made it the most common and widely used compound among other titanium compounds. Ores are considered as essential resources of the engineering materials. Generally decreasing of metals percentages in ores by the time has been noted in metallurgical industries. But modern progress of technical means maintains investment ability of the ore which was rather poor for an earlier period. The chemical analysis of Iraqi sand of Al Amaj region declares that it contains low grade of titanium dioxide and within 0.95% percentage. The analysis of volume fraction distribution of the sand indicates that it is fine sand and the larger fraction is with particle size less than 150 µm. TiO2 content distributed unregularly within the different particle volumes, and its larger fraction is concentrated in the fine volume fractions which are less than 150 µm. The concentration process by shaking table increased TiO2 percentage in the ore from 0.95% to 23% with recovery percentage of 72% when the solid fraction percentage is 20% and the feeding rate is 1 L/min. The magnetic separation processes of the concentrate that produced from the shaking table which accomplished by high intensity wet magnet lead to ilmenite with concentration of 57.8% and recovery of 83.8%. The parameters of this process are solid percentage of 20%, feeding rate of 1 L/min and magnetic force of 6.63 kjaws.

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